Multi-State Collaborative (MSC) to Advance Learning Outcomes Assessment

Pilot Year Study Findings and Summary

These slides summarize results from a proof-of-concept pilot study involving 59 institutions in nine states using common rubrics to assess more than 7,000 student work products. The sample of student work in the pilot represented the near-graduation students across the participating institutions in the nine states only; therefore, the results are not generalizable for all students in each participating state or nationwide.

AAC&U — Association of American Colleges and Universities

SHEEO — STATE HIGHER EDUCATION EXECUTIVE OFFICERS ASSOCIATION

MSC Pilot Competencies/Learning Outcomes

- Written Communication

- Quantitative Literacy

- Critical Thinking

MSC Pilot by the Numbers

- MSC states: Connecticut, Indiana, Kentucky, Massachusetts, Minnesota, Missouri, Oregon, Rhode Island, Utah

- 59 public institutions uploaded artifacts

- By sector:
  - 28 four-year, including 8 research institutions
  - 31 two-year

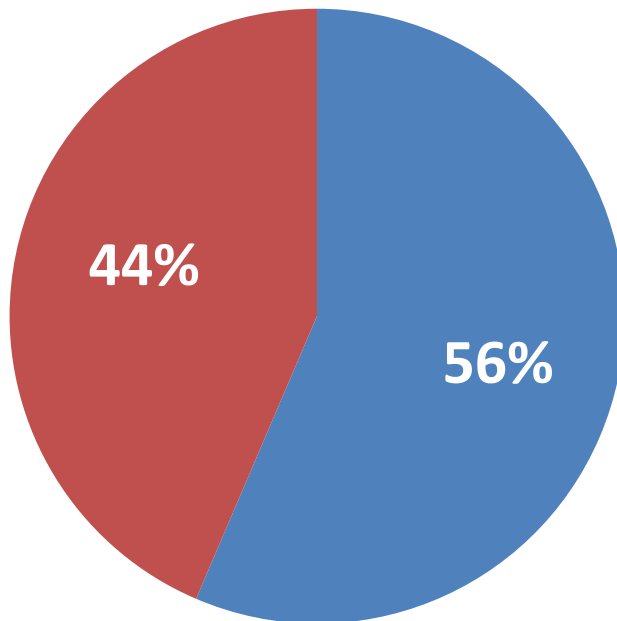These results are not generalizable across participating states or the nation in any way. Please use appropriately.

MSC Pilot by the Numbers

- 7,215 pieces of student work were submitted [number of pieces of work approximates number of student participants]
  - Students had to be 75% of the way to completion of institutional degree requirements
  - 2,642 artifacts scored twice (36.6%) in order to measure inter-rater reliability

- 1,166 assignments were submitted [number of assignments approximates number of faculty participants]
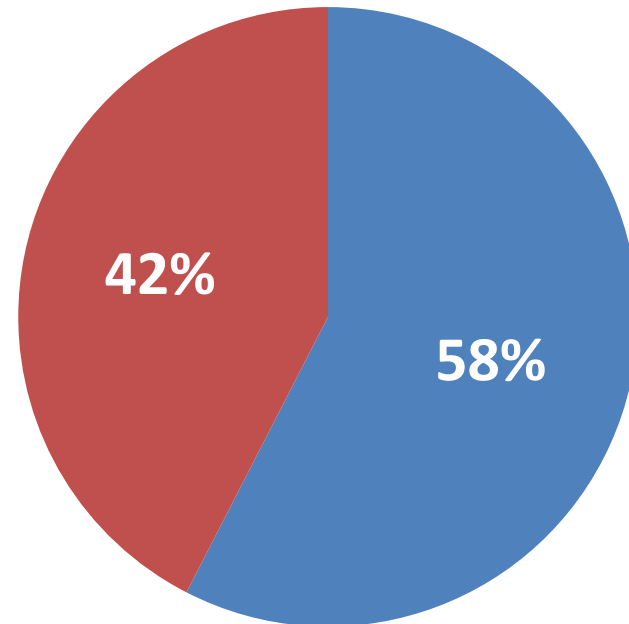
These results are not generalizable across participating states or the nation in any way. Please use appropriately.

MSC Pilot Study Student Population Sample by Gender Relative to Graduating Students in Participating Institutions

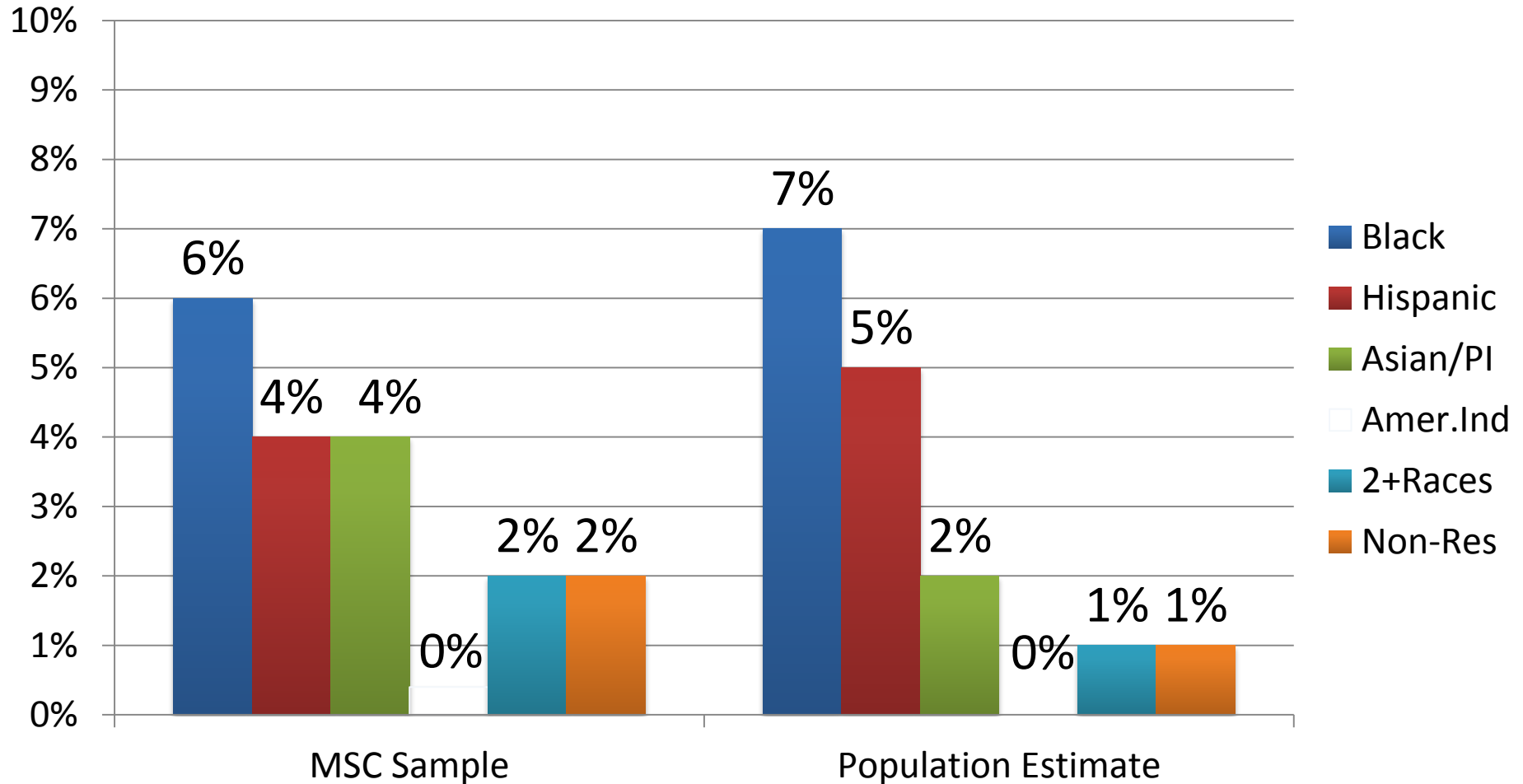**MSC Sample**

Population Estimate

44%

56%

42%

58%

■ Female ■ Male

These results are not generalizable across participating states or the nation in any way. Please use appropriately.

MSC Pilot Study Four-Year Student Population Samples by Race

82% of students in MSC sample were White; 80% of students in participating institutions were White

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MSC Pilot Study Two-Year Student Population Samples by Race

77% of MSC sample were White students; 81% of students in participating institutions were White

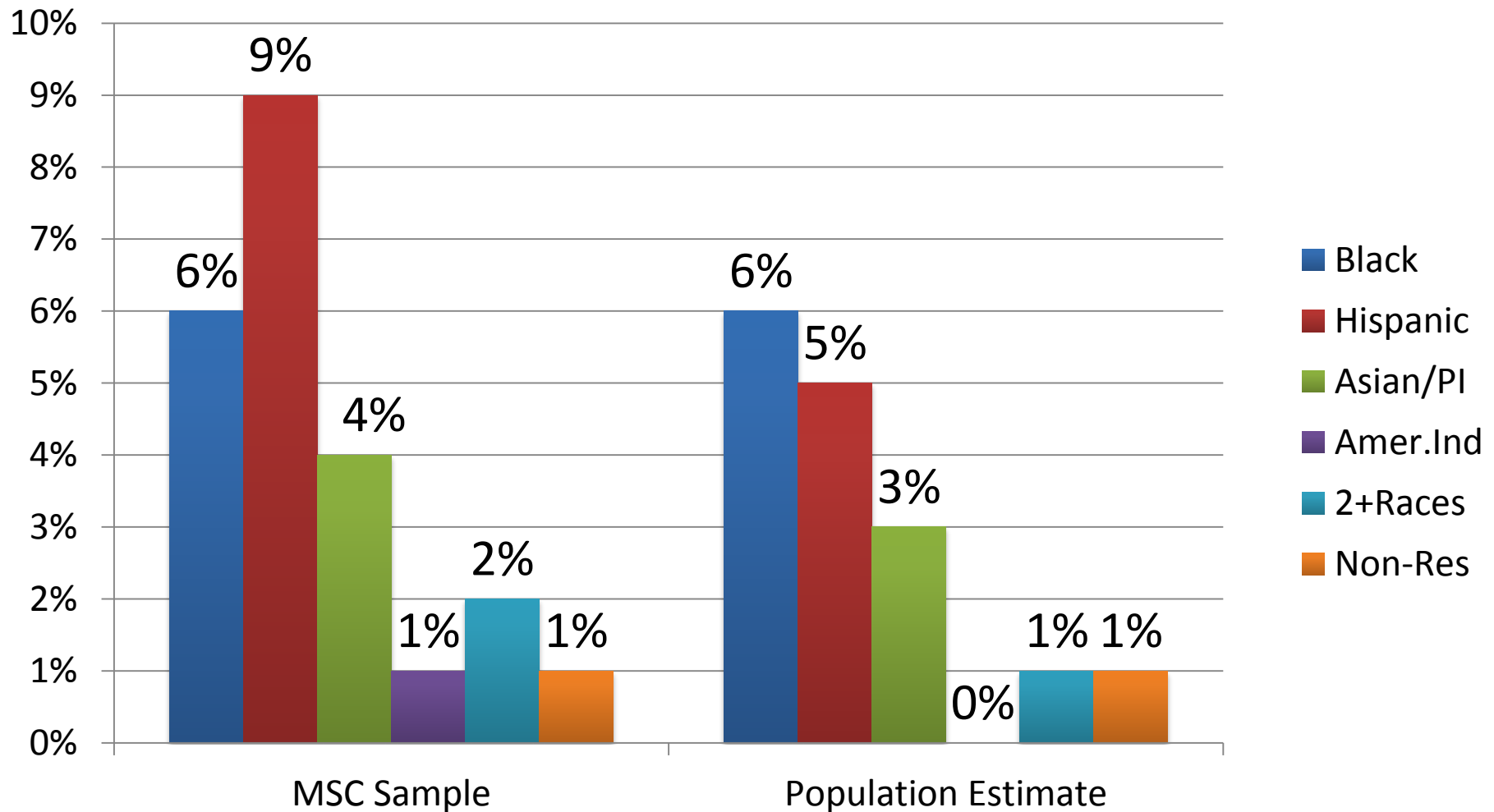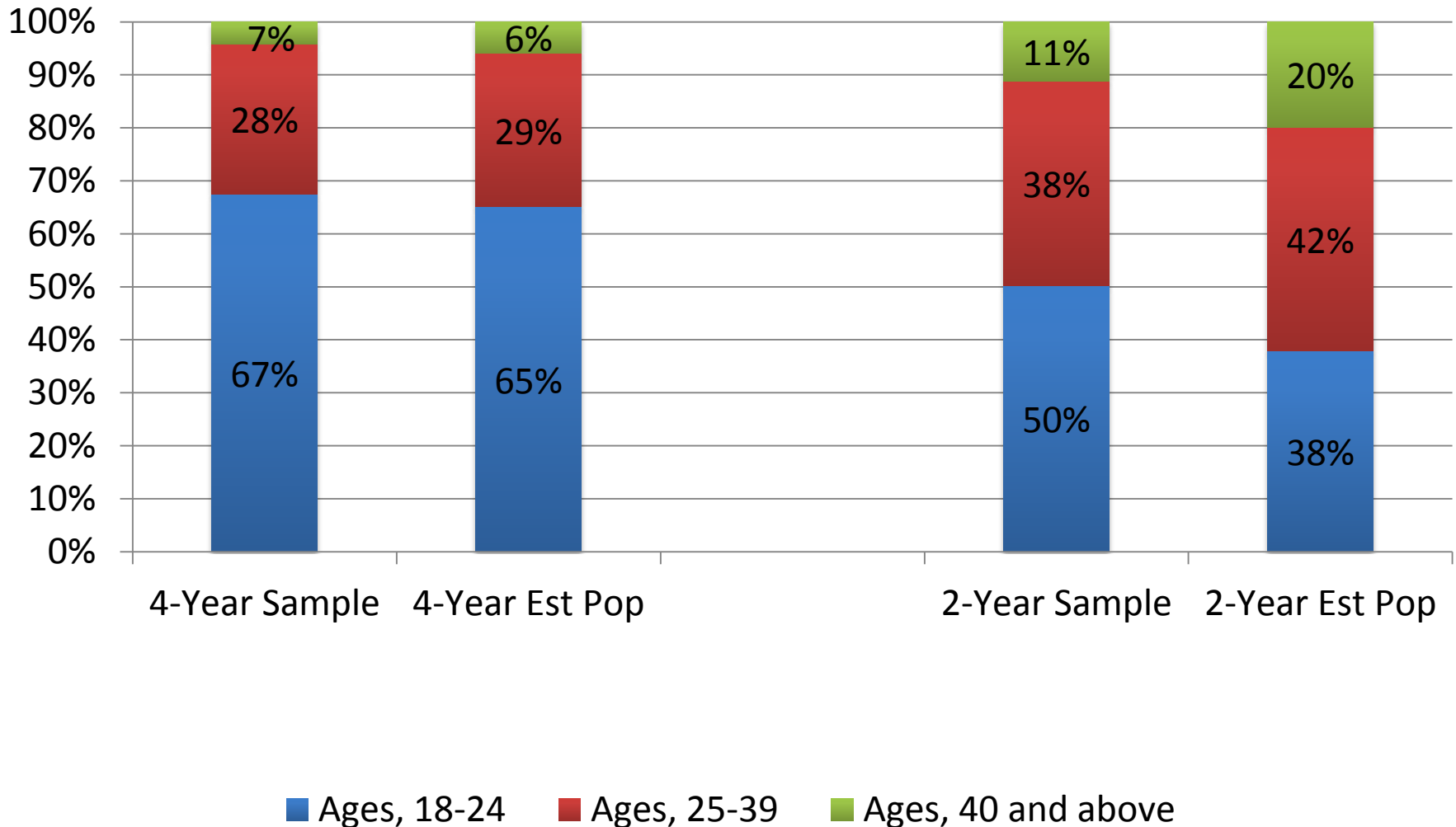These results are not generalizable across participating states or the nation in any way. Please use appropriately.

MSC Pilot Study Student Population Sample by Age Relative to Students at Participating Institutions

Legend: Ages, 18-24 · Ages, 25-39 · Ages, 40 and above

Data values by category:

	4-Year Sample	4-Year Est Pop	2-Year Sample	2-Year Est Pop
Ages, 40 and above	7%	6%	11%	20%
Ages, 25-39	28%	29%	38%	42%
Ages, 18-24	67%	65%	50%	38%

MSC Pilot Student Population of Pell-Eligible vs. Non Pell-Eligible Students
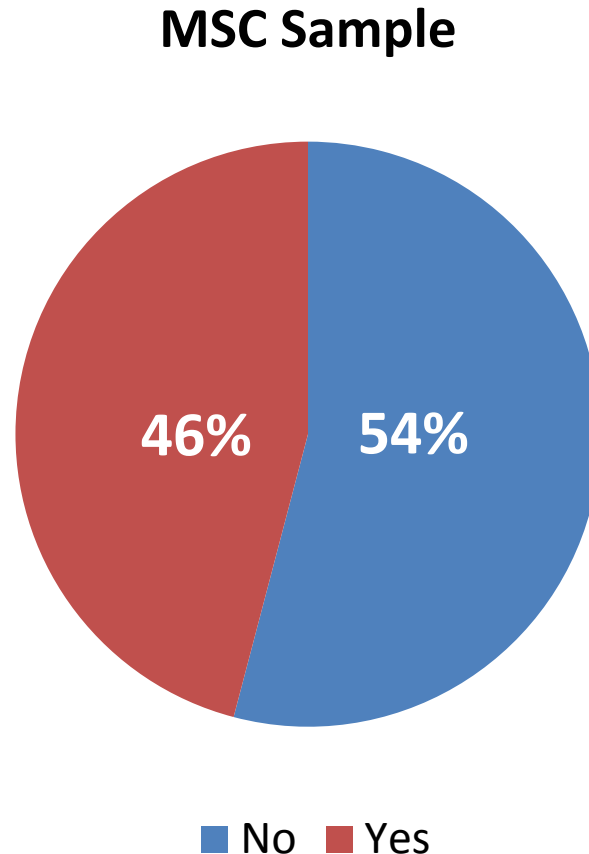
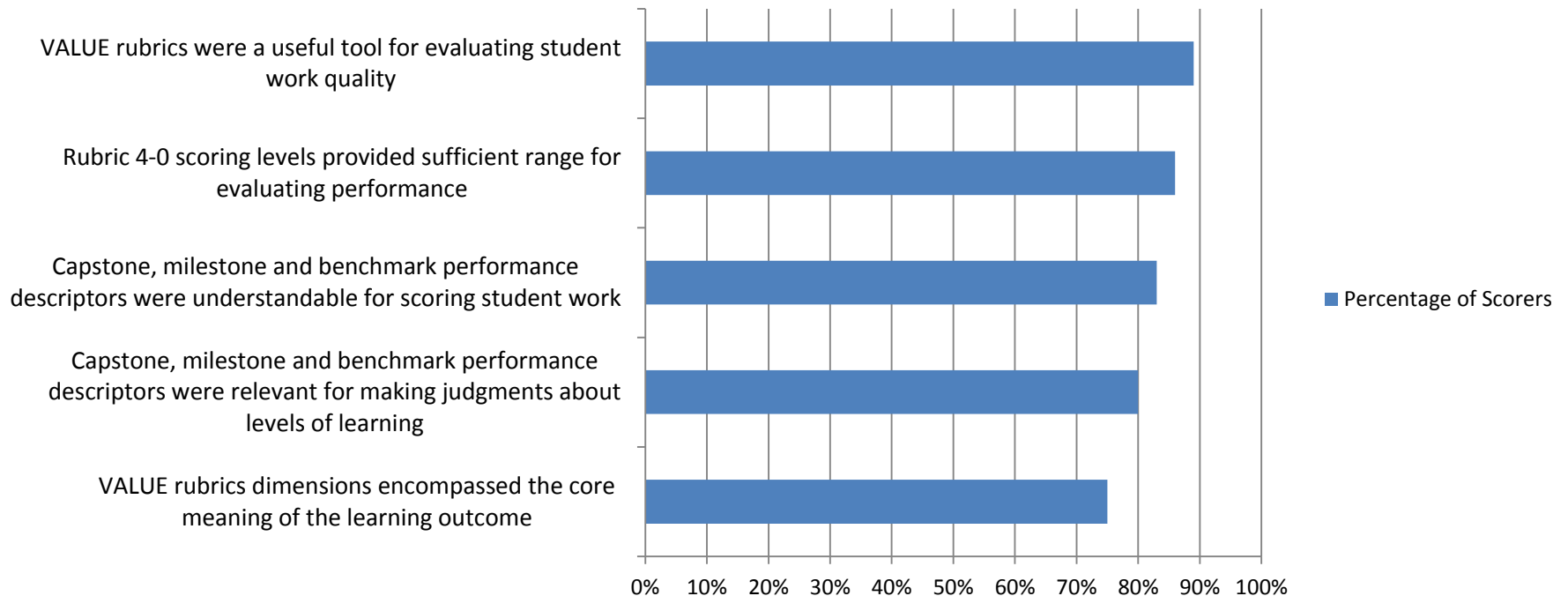**MSC Sample**

46%   54%

■ No   ■ Yes

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Faculty and Staff Responses to Usefulness of VALUE Rubrics for Assessing Student Work

Percent of scorers who reported Strongly Agree or Agree with each aspect of rubric use

Percentage of Scorers

VALUE rubrics were a useful tool for evaluating student work quality	~89%
Rubric 4-0 scoring levels provided sufficient range for evaluating performance	~86%
Capstone, milestone and benchmark performance descriptors were understandable for scoring student work	~83%
Capstone, milestone and benchmark performance descriptors were relevant for making judgments about levels of learning	~80%
VALUE rubrics dimensions encompassed the core meaning of the learning outcome	~75%

Legend: ■ Percentage of Scorers

Quantitative Literacy Rubric Dimensions

	Capstone	Milestones		Benchmark
	4	3	2	1
Interpretation Ability to explain information presented in mathematical forms (e.g., equations, graphs, diagrams, tables, words**)**	Provides accurate explanations of information presented in mathematical forms. Makes appropriate inferences based on that information. For example, accurately explains the trend data shown in a graph and makes reasonable predictions regarding what the data suggest about future events.	Provides accurate explanations of information presented in mathematical forms. For instance, accurately explains the trend data shown in a graph.	Provides somewhat accurate explanations of information presented in mathematical forms, but occasionally makes minor errors related to computations or units. For instance, accurately explains trend data shown in a graph, but may miscalculate the slope of the trend line.	Attempts to explain information presented in mathematical forms, but draws incorrect conclusions about what the information means. For example, attempts to explain the trend data shown in a graph, but will frequently misinterpret the nature of that trend, perhaps by confusing positive and negative trends.
Representation Ability to convert relevant information into various mathematical forms (e.g., equations, graphs, diagrams, tables, words)	Skillfully converts relevant information into an insightful mathematical portrayal in a way that contributes to a further or deeper understanding.	Competently converts relevant information into an appropriate and desired mathematical portrayal.	Completes conversion of information but resulting mathematical portrayal is only partially appropriate or accurate.	Completes conversion of information but resulting mathematical portrayal is inappropriate or inaccurate.
Calculation	Calculations attempted are essentially all successful and sufficiently comprehensive to solve the problem. Calculations are also presented elegantly (clearly, concisely, etc.)	Calculations attempted are essentially all successful and sufficiently comprehensive to solve the problem.	Calculations attempted are either unsuccessful or represent only a portion of the calculations required to comprehensively solve the problem. ☐	Calculations are attempted but are both unsuccessful and are not comprehensive.
Application / Analysis Ability to make judgments and draw appropriate conclusions based on the quantitative analysis of data, while recognizing the limits of this analysis	Uses the quantitative analysis of data as the basis for deep and thoughtful judgments, drawing insightful, carefully qualified conclusions from this work.	Uses the quantitative analysis of data as the basis for competent judgments, drawing reasonable and appropriately qualified conclusions from this work.	Uses the quantitative analysis of data as the basis for workmanlike (without inspiration or nuance, ordinary) judgments, drawing plausible conclusions from this work.	Uses the quantitative analysis of data as the basis for tentative, basic judgments, although is hesitant or uncertain about drawing conclusions from this work.
Assumptions Ability to make and evaluate important assumptions in estimation, modeling, and data analysis	Explicitly describes assumptions and provides compelling rationale for why each assumption is appropriate. Shows awareness that confidence in final conclusions is limited by the accuracy of the assumptions.	Explicitly describes assumptions and provides compelling rationale for why assumptions are appropriate.	Explicitly describes assumptions.	Attempts to describe assumptions.
Communication Expressing quantitative evidence in support of the argument or purpose of the work (in terms of what evidence is used and how it is formatted, presented, and contextualized)	Uses quantitative information in connection with the argument or purpose of the work, presents it in an effective format, and explicates it with consistently high quality.	Uses quantitative information in connection with the argument or purpose of the work, though data may be presented in a less than completely effective format or some parts of the explication may be uneven.	Uses quantitative information, but does not effectively connect it to the argument or purpose of the work.	Presents an argument for which quantitative evidence is pertinent, but does not provide adequate explicit numerical support. (May use quasi-quantitative words such as "many," "few," "increasing," "small," and the like in place of actual quantities.)

MSC Pilot Study Results—Quantitative Literacy Dimension 4-Year Institutional Score Distribution
% of student work products scored 4-0 by faculty scorers on each dimension of quantitative literacy

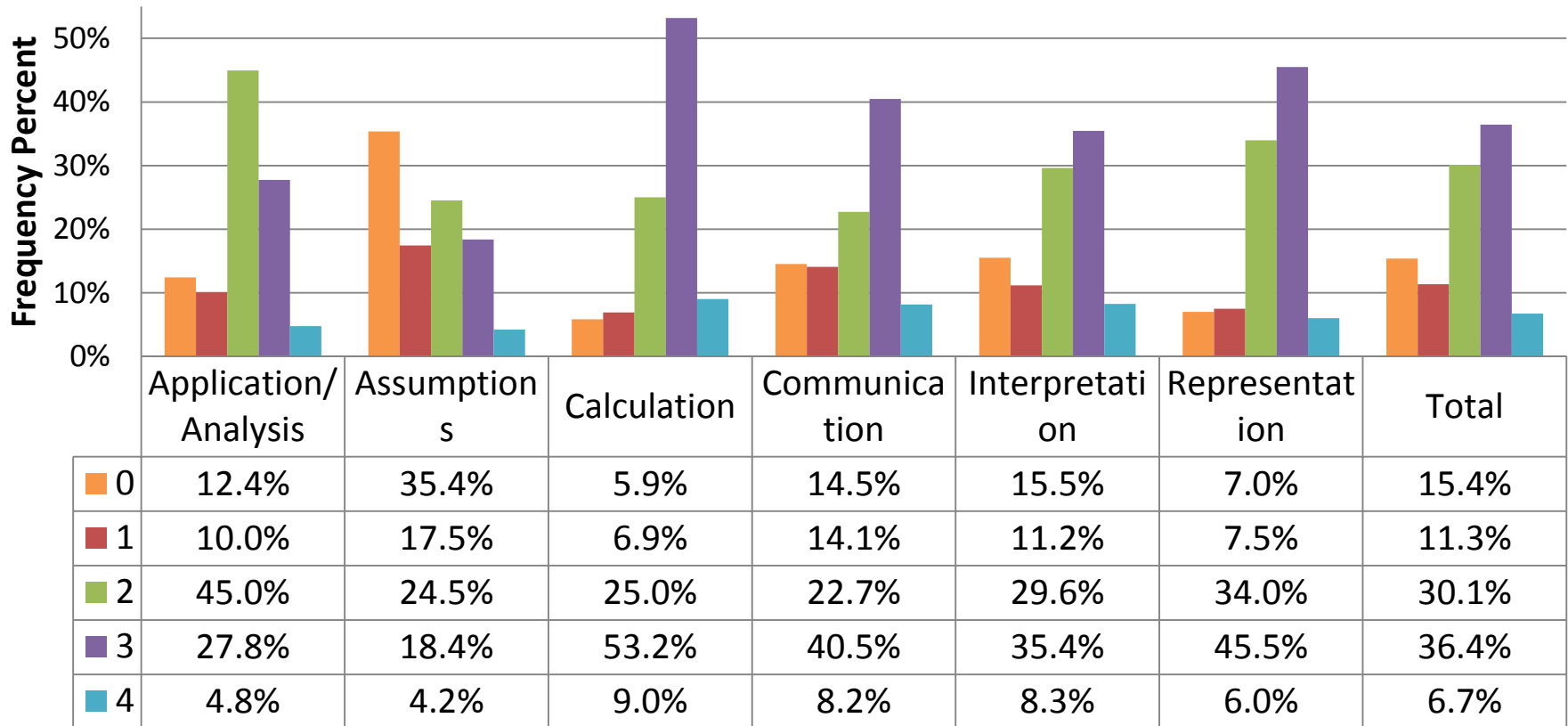|	Application/ Analysis	Assumptions	Calculation	Communication	Interpretation	Representation	Total
■ 0	7.3%	27.6%	9.1%	11.2%	11.2%	13.1%	13.7%
■ 1	10.7%	12.8%	5.4%	8.0%	5.1%	7.1%	8.2%
■ 2	33.3%	31.5%	19.4%	22.5%	26.4%	26.2%	26.4%
■ 3	31.3%	19.7%	47.8%	35.8%	38.2%	38.3%	35.1%
■ 4	17.3%	8.4%	18.3%	22.5%	19.1%	15.3%	16.7%
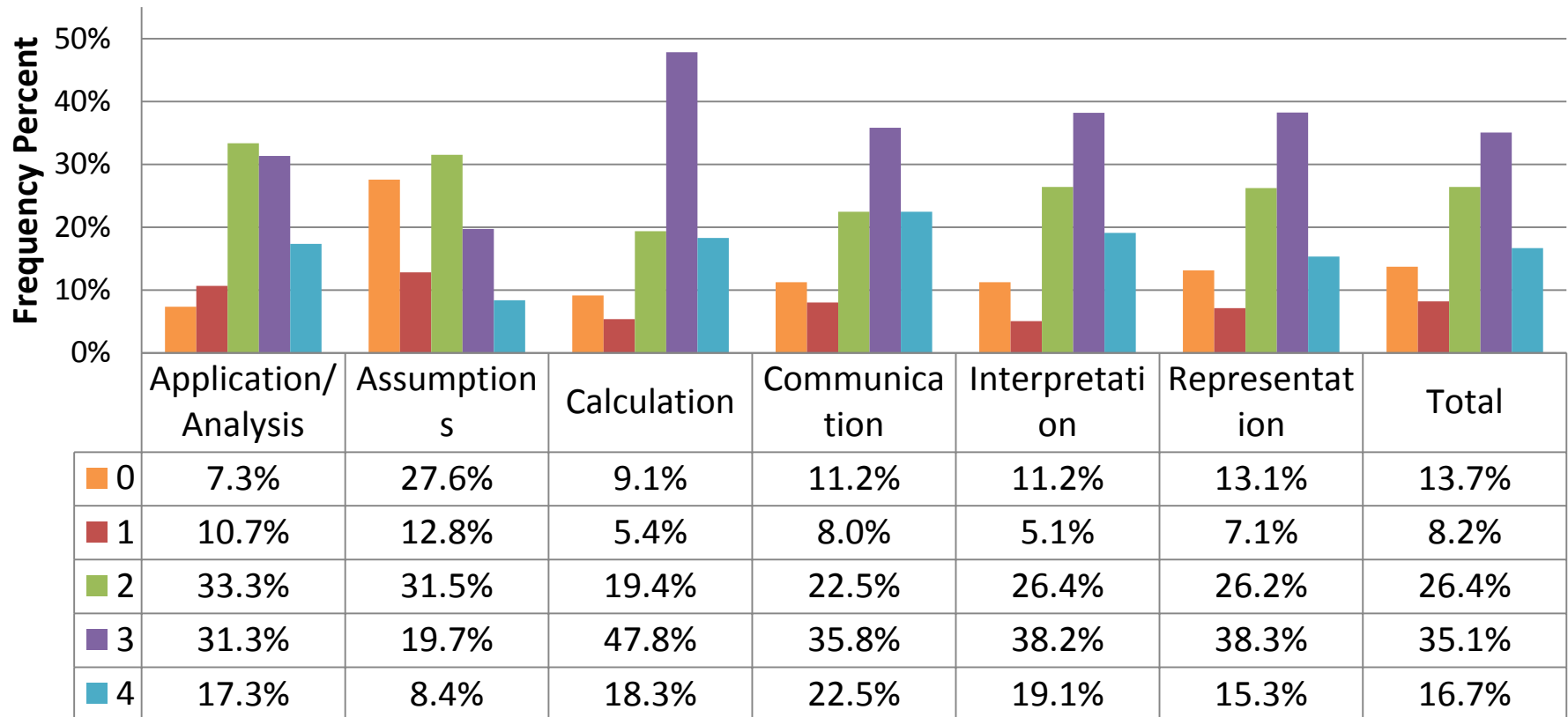
Note: Each work product was scored on 6 dimensions of quantitative literacy using a common AAC&U VALUE Rubric. See Slide 12 below for rubric dimension criteria. VALUE rubrics are available at www.aacu.org/value.

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MSC Pilot Study Results—Quantitative Literacy Dimension 2-Year Institutional Score Distribution
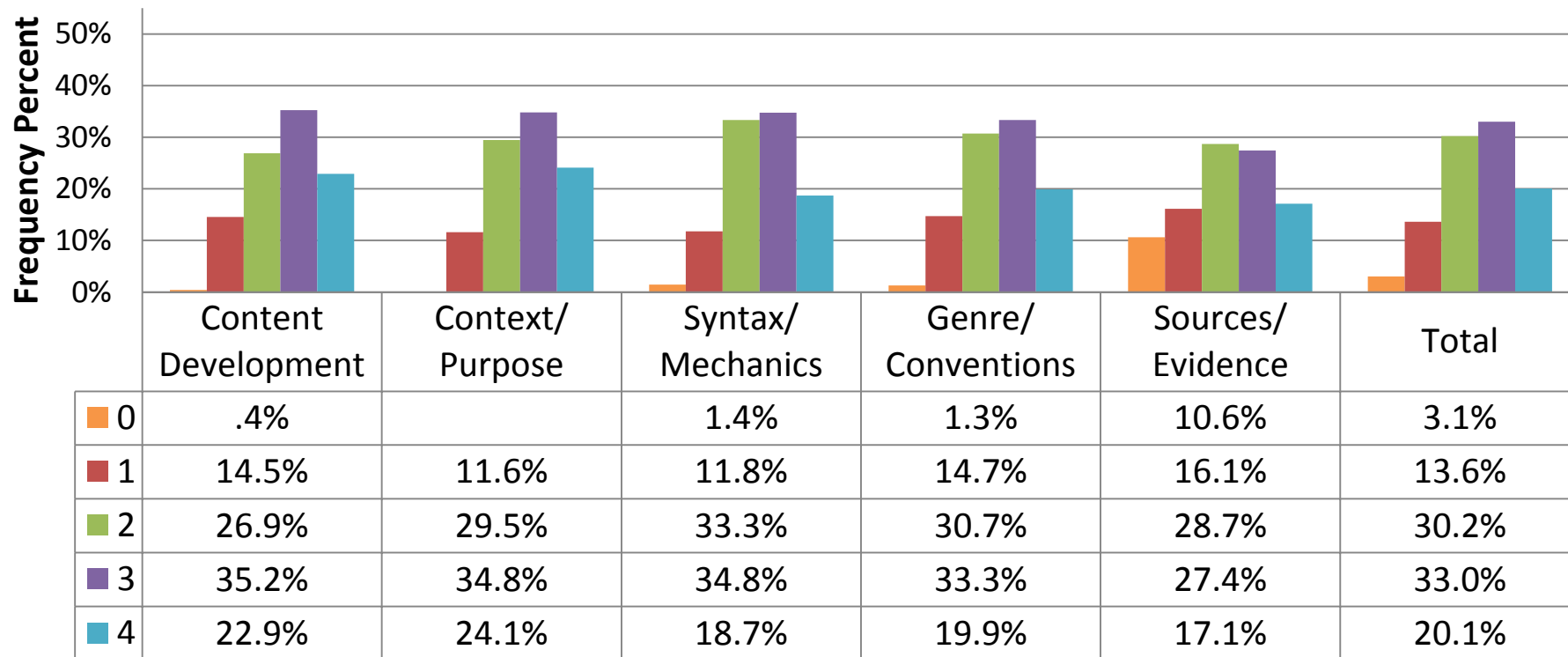## % of student work products scored 4-0 by faculty scorers on each dimension of quantitative literacy

	Application/ Analysis	Assumptions	Calculation	Communication	Interpretation	Representation	Total
■ 0	12.4%	35.4%	5.9%	14.5%	15.5%	7.0%	15.4%
■ 1	10.0%	17.5%	6.9%	14.1%	11.2%	7.5%	11.3%
■ 2	45.0%	24.5%	25.0%	22.7%	29.6%	34.0%	30.1%
■ 3	27.8%	18.4%	53.2%	40.5%	35.4%	45.5%	36.4%
■ 4	4.8%	4.2%	9.0%	8.2%	8.3%	6.0%	6.7%

Note: Each work product was scored on 6 dimensions of quantitative literacy using a common AAC&U VALUE Rubric. See Slide 12 below for rubric dimension criteria. VALUE rubrics are available at www.aacu.org/value.

MSC Pilot Study Results—Written Communication Dimension 4-Year Institutional Score Distribution
% of student work products scored 4-0 by faculty scorers on each dimension of written communication

	Content Development	Context/ Purpose	Syntax/ Mechanics	Genre/ Conventions	Sources/ Evidence	Total
0	.4%		1.4%	1.3%	10.6%	3.1%
1	14.5%	11.6%	11.8%	14.7%	16.1%	13.6%
2	26.9%	29.5%	33.3%	30.7%	28.7%	30.2%
3	35.2%	34.8%	34.8%	33.3%	27.4%	33.0%
4	22.9%	24.1%	18.7%	19.9%	17.1%	20.1%

Note: Each work product was scored on 5 dimensions of written communication using a common AAC&U VALUE Rubric. See Slide 15 below for rubric dimension criteria. VALUE rubrics are available at www.aacu.org/value.

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